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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/525,739

02/28/2005

Keisuke Ebiko

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EXAMINER

FLORES, LEON

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.		Applicant(s)	
	10/525,739		EBIKO, KEISUKE	
	Examiner		Art Unit	
	Leon Flores		2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-17 is/are rejected.
- 7) ☒ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/28/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims (1-8 & 11-17) are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitagawa et al. (hereinafter Kitagawa) and in view of Kaneko et al. (hereinafter Kaneko)**

Re claim 1, Kitagawa discloses a multi-carrier communication apparatus for simultaneously transmitting a plurality of different data streams from a plurality of antennas using the same carrier group, said apparatus comprising: a determination

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section that determines whether a peak power is occurred in at least one data stream (See fig. 8: 104 & paragraph 45).

But the reference of Kitagawa fails to explicitly teach an exchange section that exchanges a part of data in said data stream for a part of data in another data stream when it is determined that the peak power is occurred.

However, Kaneko does. (See figs. 3-6 & col. 17, line 39 – col. 19, line 30) Kaneko does suggest that if the control section detects over peak power conditions, thereby changing the assignments of the data pieces to the carriers.

Therefore, taking the combined teachings of Kitagawa and Kaneko as a whole. It would have been obvious to one of ordinary skills in the art to have incorporated this feature into the system of Kitagawa, in the manner as claimed and as taught by Kaneko, for the benefit of reducing the peak power value.

Re claim 2, the combination of Kitagawa and Kaneko further discloses that wherein said determination section comprises: a measurement section that measures a power of each data stream (In Kaneko, see fig. 3: 4D & col. 17, lines 25-27), and a comparison section that compares a measured power with a predetermined threshold (In Kaneko, see fig. 3: 4D & col. 17, lines 25-27), and wherein said determination section determines a peak power is occurred in a data stream of which the measured power is greater than a predetermined threshold as a result of comparison. (In Kaneko, see fig. 3: 4D & col. 17, line 25 – col. 18, line 12)

Re claim 3, the combination of Kitagawa and Kaneko further discloses that wherein said exchange section comprises: an exchange pattern decision section that decides a pattern for exchanging a part of data in each data stream in units of predetermined groups of carriers (In Kaneko, see col. 19, lines 31-46), and a data exchange section that exchanges a part of data in each data stream according to the decided exchange pattern. (In Kaneko, see col. 19, lines 31-46)

Re claim 4, the combination of Kitagawa and Kaneko further discloses that wherein said exchange pattern decision section decides a pattern for exchanging data between groups having an equal frequency among carrier groups. (In Kaneko, see figs. 5 & 6, col. 19, lines 6-46)

Re claim 5, the combination of Kitagawa and Kaneko further discloses that wherein said exchange pattern decision section decides a pattern for exchanging data between groups having different frequencies among carrier groups. (In Kaneko, see figs. 5 & 6, col. 19, lines 6-46)

Re claim 6, the combination of Kitagawa and Kaneko further discloses that wherein said data exchange section exchanges orthogonal pilot data included in a part of data in each data stream. (In Kaneko, see figs. 5 & 6, col. 19, lines 6-46)

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Re claim 7, the combination of Kitagawa and Kaneko further discloses that wherein said data exchange section does not exchange orthogonal pilot data included in a part of data in each data stream. (In Kaneko, see figs. 5 & 6, col. 19, lines 6-46. Furthermore, one skilled in the art would know that it is up to the designer to decide whether or not he/she wants to exchange pilot data.)

Re claim 8, the combination of Kitagawa and Kaneko further discloses that wherein said exchange section comprises a transmission section that transmits exchange pattern information for communicating a pattern for exchanging data to a communication opposite station. (In Kaneko, see fig. 1)

Re claim 11, the combination of Kitagawa and Kaneko further discloses a production section that subjects transmit data to coding so as to produce a plurality of different data streams having a coding relation with each other. (In Kitagawa, see paragraph 147)

Re claim 12, the combination of Kitagawa and Kaneko further discloses that wherein said production section subjects transmit data to block coding at every predetermined block coding unit, and wherein said exchange section performs an exchange of data using said block coding unit as a minimum unit. (In Kaneko, see fig. 1 & descriptions.)

Re claim 13, the combination of Kitagawa and Kaneko further discloses that wherein said production section subjects transmit data to convolution coding so as to produce a plurality of different data streams. (In Kitagawa, see paragraph 147)

Re claim 14, the combination of Kitagawa and Kaneko further discloses that wherein said production section subjects transmit data to turbo-coding so as to produce a plurality of different data streams. (In Kitagawa, see paragraph 147)

Re claim 15, the combination of Kitagawa and Kaneko further discloses a communication terminal apparatus having the multi-carrier communication apparatus according to claim 1. (In Kaneko, see col. 9, lines 29-30)

Re claim 16, the combination of Kitagawa and Kaneko further discloses a base station apparatus having the multi-carrier communication apparatus according to claim 1. (In Kaneko, see col. 9, lines 29-30. Furthermore, one skilled in the art would know that a base station may operate under OFDM.)

Claim 17 has been analyzed and rejected w/r to claim 1 above.

Allowable Subject Matter

4. Claims (9-10) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Re claim 9, the further limitation of *"wherein said transmission section transmits exchange pattern information using a particular carrier excluded from an object to be exchanged"*.

Re claim 10, the further limitation of *"a formation section that forms different directivity weights for each data stream, wherein when data are exchanged by said exchange section, said formation section performs an exchange of the directivity weights in response to an exchange of the data"*

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Flores whose telephone number is 571-270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LF
October 25, 2007


DAVID C. PAYNE
SUPERVISORY PATENT EXAMINER